

2.4 Labour outflow from the public sector in Hungary

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This chapter concentrates on the outflow from the public sector in Hungary in the period between 1998 and 2010; a more detailed analysis can be found in *Elek and Szabó's* (2013) paper. First, the rate of job mobility and outflow into unemployment or inactivity from the public sector will be compared to the same rates from the private sector and we will consider whether the public sector is more stable in any of these aspects. It will be shown that the likelihood of moving into unemployment or another job from the public sector was approximately half of that from the private sector between 1998 and 2010.

Secondly – as a possible implication of the public sector's higher stability – it will be examined whether people who leave the public sector end up in a significantly worse position than similar workers leaving the private sector. This will be assessed by examining the re-employment probabilities of those made redundant and overqualification rates of those who left to move to another job. The results will show that – with the exception of the low-skilled – workers coming from the public sector are not at a disadvantage in terms of finding a new job and they are not at increased risk of ending up in a “worse” job position compared to people from the private sector.

An important contribution of this study is that it uses two large micro-level panel data sets [the Labour Force Survey (LFS) of the Hungarian Central Statistical Office (CSO) and the 200,000-strong sample from the register of the Central Administration of National Pension Insurance (CANPI)] to examine these questions.

Data and definitions

CSO Labour Force Survey. The CSO's Labour Force Survey (LFS) is a quarterly survey on a representative sample of 70,000 individuals. It provides information on self-reported labour market status and other characteristics. From the perspective of the present study, an important feature of the survey is that it asks about the reason for terminating previous employment (dismissal, redundancy, leaving the job etc.) and thus it is possible to distinguish between people who left the public sector voluntarily and people who were forced to leave. The survey follows participants for six quarters and thus consecutive quarters can be linked to create a panel dataset.

This study adopts a relatively narrow definition of the public sector when using CSO Labour Force Survey data: an employee is part of the public sector if they work in, public administration and defence, education, health and

social care or research and development branches¹ and their employer is not fully privately owned. Thus, the definition excludes people who work in privately owned hospitals or schools, as well as people who work in state-owned businesses in manufacturing or services (for example the Hungarian National Rail). We also exclude people who are employed in public works programmes because they are significantly different from the rest of public sector employees.²

CANPI pension insurance database. The other data set comes from the Central Administration of National Pension Insurance, and contains an anonymised administrative panel data of 200,000 people between 2000 and 2006. It records social security insurance status (for example work contract, public service employee or civil servant status, self-employed etc.) and corresponding income as well as transfers (sick leave, family benefits, pensions) received by the individuals in the sample for each month. In addition the data set includes some demographic and personal information (age, gender, post code), and the occupation (SCO) code for most social security statuses (except for self-employed statuses and alike). Thus the CANPI database makes it possible to follow the (official) labour market and transfer status of individuals on a large sample over a longer period than the LFS.³

Since the CANPI administrative database has no direct information on branch, public sector was identified jointly on the basis of social security status and the SCO code. An employee is considered to be part of the public sector if they are employed in public service, public administration, judiciary, law enforcement, armed forces or “premium years” status (the latter is designed for the employment of public employees just before the pension age limit), *or* if their SCO code indicates an occupation that is highly likely to be in the public sector (doctor, nurse, teacher etc.). Thus, the CANPI dataset (unlike the CSO Labour Force Survey) includes doctors and teachers in private hospitals, schools etc. among the public sector workers.⁴ In the analysis private sector means employees outside the public sector; the self-employed and entrepreneurs are excluded. The CANPI database does not have information on educational attainment, but this is approximated on the basis of occupation by assigning the typical (median) educational attainment of employees with the same SCO code in the Labour Force Survey to the SCO code of the individual in the administrative data.

1 This includes Hungarian NACE–2003 codes 73, 75, 80 and 85, that correspond to codes 72, 75, 84–88 in NACE–2008 (the latter has been used in the definition since 2009).

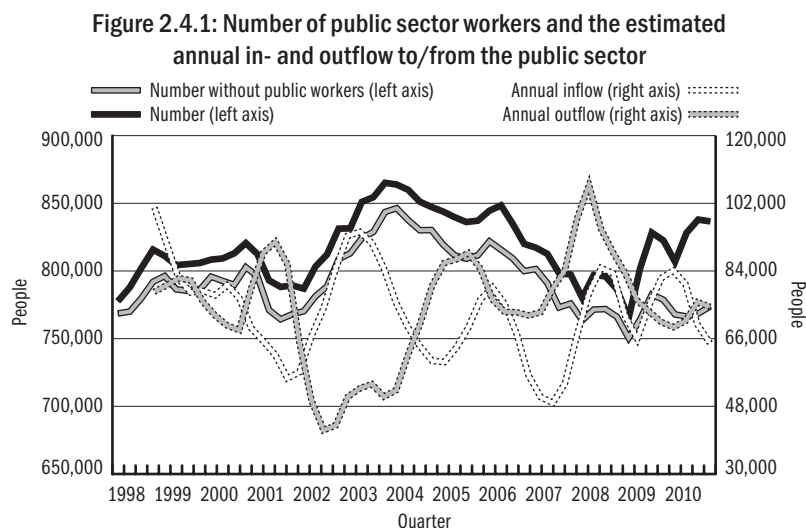
2 For details of the narrower definition of the public sector see *Elek and Szabó* (2013).

3 For a detailed description of the database see *Elek et al.* (2009a).

4 The exact definitions can be found in Table F2 in the Annex of the more detailed version of this study (*Elek and Szabó*, 2013).

The characteristics of people leaving the public sector

According to *Figure 2.4.1* the public sector comprised approximately 800,000 people between 1998 and 2002. Then, this number started to increase rapidly and reached its peak at around 850,000 by 2003–2004. By 2008, it dropped to 790,000, which was again followed by a rapid rise but only due to the rising number of participants in public works programmes.



Note: The number of people entering or leaving the public sector are presented after iterative proportional fitting and (symmetrical) moving average smoothing over four quarters.

Source: Own calculations based on *CSO Labour Force Survey* data between 1998–2010, public sector without public works participants.

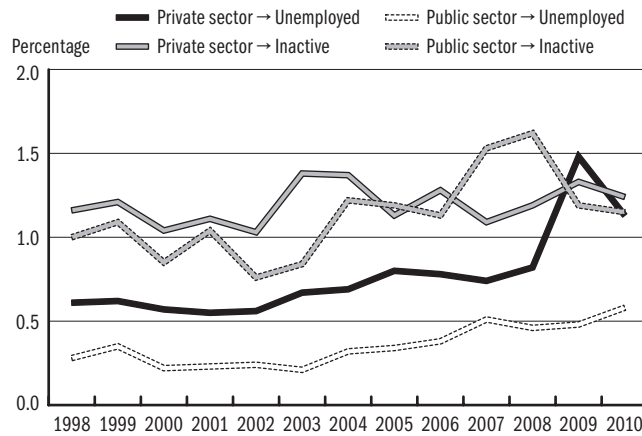
Figure 2.4.1. shows the estimated outflow from, and inflow to, the public sector (without public works participants) in this period.⁵ The probability of entry to, or exit from, the public sector was around nine per cent on average annually, and changes in the number of people entering or leaving the public sector all had a clear role both in the rapid rise between 2002 and 2004 and the decline later. In the following the first component, the outflow, will be examined. (On inflow see Chapter 2.3 by *János Köllő* in this *In Focus*.)

Figure 2.4.2. and *Figure 2.4.3.* show quarterly outflow rates from the public sector – without public workers – into inactivity, unemployment or other jobs in another sector compared to the corresponding rates from the private sector between 1998 and 2010.⁶ A large part of the outflow from the public sector was comprised of people who become inactive (retire, claim child care benefits or enter another inactive status). The quarterly probability of outflow to inactivity was on average 1.1 per cent and showed an increasing trend, although it was not substantially different from the same rate in the private sector. The probability of becoming unemployed and of job mobility were considerably lower in the public sector, on average around 0.3–0.4 per cent each, well below the same transition probabilities of private sector workers. It is noticeable that while the risk of unemployment increased considerably in the private sector after the 2009 crisis, it did not grow at all in the public sector until 2010. Hungary was still characterised – as shown by *Boeri and Flinn* (1997) in their earlier study on three transition countries (Poland, Hungary and Slovakia) – by lower mobility in the public sector compared to the private sector.

⁵ In the calculations we did not use unadjusted transition probabilities that were computed directly from Labour Force Survey panel data, but we adjusted these using *iterative proportional fitting* to ensure the consistency between stock and flow figures.

⁶ In addition to the above transitions, outflow from the public sector formally includes outsourcing as well. See the more detailed version of this study (*Elek and Szabó*, 2013) on the number of people affected by this.

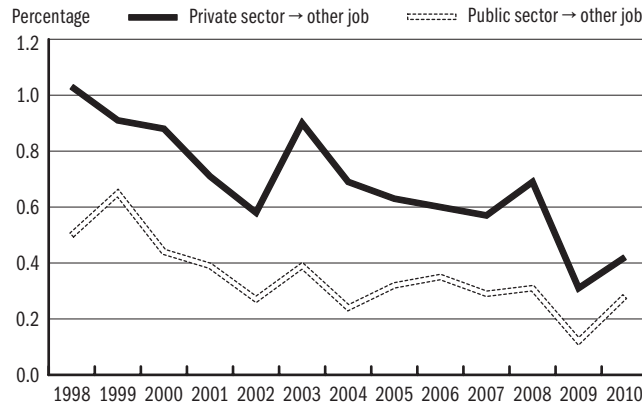
Figure 2.4.2: Quarterly transition probabilities from the public and the private sector into unemployment and inactivity



Note: The figure depicts the quarterly probabilities of outflow into inactivity and unemployment from the public sector (without public workers) and from the private sector.

Source: Own calculations based on CSO Labour Force Survey data between 1998–2010

Figure 2.4.3: Quarterly probabilities of job mobility from the public and private sector



Note: The figure depicts the quarterly probabilities of job mobility into other occupation and industry from the public sector (without public workers) and from the private sector.

Source: Own calculations based on CSO Labour Force Survey data between 1998–2010

7 On outflow into retirement see for example *Cseres-Gergely* (2008), on family benefits see *Scharle* (2008). On the “crowding-out” dynamics between younger and older employees in the public sector see *Cseres-Gergely* (2013).

In the following we will focus on two out of the three important transitions: outflow into unemployment and another job. As has been shown the probability of the third type of transition (into inactivity) is not substantially different in the two sectors, thus the mechanisms at work are likely to be broadly similar as well, and the general patterns of retirement have already been examined by various studies.⁷

Transitions into unemployment from the public sector

The raw data in *Figure 2.4.2* hide large variations in outflow in terms of educational attainment and other factors. A more detailed analysis of the risk of becoming unemployed shows that its probability in the public sector is approximately half of that in the private sector at each educational level.⁸ If a logit regression model is used to control for factors known to influence the probability of unemployment (for example gender, age, type of settlement), then the results show that people with higher educational attainment (at least general secondary education) in the public sector are in an even better position than those with lower education; the relative risk of unemployment (compared to the private sector) among the highly educated is 20–30 per cent better than the corresponding relative risk among low-skilled workers.⁹

Probability of re-employment. Using LFS and CANPI data the widespread belief that public sector workers who are made redundant remain unemployed for longer (i.e. are less likely to be re-employed) than similar workers in the private sector can be examined. The labour market status of redundant workers was observed quarterly for up to four quarters in the LFS; and monthly even for years – depending on the date of redundancy – in the CANPI data. We use *Prentice and Gloeckler's* (1978) proportional hazards discrete-time duration model that is often referred to as the *Jenkins* model in the literature based on *Jenkins* (1995). Similarly to continuous-time duration models, this expresses the hazard function $\lambda(t)$ of unemployment's duration T (or the “intensity” of re-employment) as the product of baseline re-employment intensity $\lambda_0(t)$,¹⁰ and a factor depending on individual characteristics:

$$\lambda(t) = \lambda_0(t) \times \exp(X\beta),$$

where β is the parameter vector to be estimated and X indicates the individual variables. Thus, individual characteristics have the same multiplicative effect on re-employment intensity in each period. If, for instance, $\beta = 0.1$, then the given variable increases the intensity of re-employment by about 10 per cent at each time point. (So if the probability of re-employment is five per cent in the sixth month of unemployment, then the given variable increases this to 1.1×5 per cent = 5.5 per cent.)

For the analysis of re-employment probabilities two approaches are used on both LFS and CANPI data to define people who flow out of employment. The first, narrower definition includes people who probably were made redundant.¹¹ The other definition is broader and includes all employees who become inactive or unemployed (the “total” columns on *Figure 2.4.4*).¹² The sample has been constrained to include only people aged between 25 and 54 years and not in a public works programme.

8 Obviously people with at least a general secondary education are a lot – by about a third – less likely, in both sectors, to become unemployed than those with at most a vocational education.

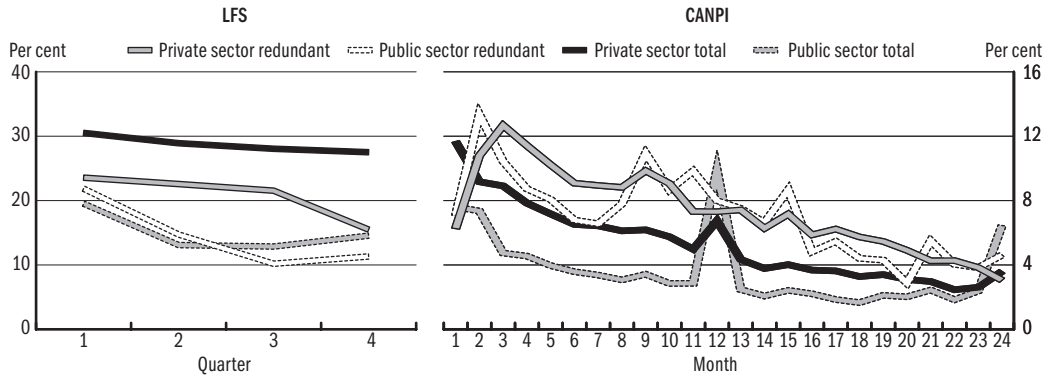
9 For the estimation results see the more detailed study (*Elek and Szabó, 2013*).

10 This is specified as non-parametric on LFS data and as a modified Weibull-distribution for the CANPI data (see the more detailed *Elek and Szabó, 2013* study).

11 In the LFS-based analysis these are people who were in employment at observation –1 and were out of work at observation 0 and reported that they had lost their job (or their temporary contract had come to an end). In the CANPI database people are considered “displaced” (“made redundant”) if they received unemployment benefit for any length of time within two months from the termination of their employee status. Thus, this is an even smaller group than the LFS definition because not all displaced workers are entitled to unemployment benefits.

12 In the LFS this includes people who became unemployed or inactive in a given quarter, while in the CANPI it includes people who are out of work due to the termination of a previous employment status or to long-term leave (because of illness or parental leave etc.).

Figure 2.4.4: Re-employment probabilities of people leaving the public and the private sector by length of time out of work, based on LFS and CANPI data (percentage)



Note: Re-employment intensity of employees aged 25–54 years after leaving a job, excluding public workers.

Source: Own calculations based on quarterly CSO LFS 1998–2010 and monthly CANPI 2000–2006 data.

Figure 2.4.4 shows that raw re-employment probabilities are consistently smaller for people who leave the public sector compared to employees from the private sector; however the difference is smaller among those who “lost” their job than among the broader groups. The results of the discrete-time duration models, presented in Table 2.4.1, also support this. (The detailed model specifications can be found in *Elek and Szabó’s* 2013 paper.) Results for people who are made redundant (groups of columns 1 and 3) indicate that the raw re-employment intensity after public sector work history was 25 per cent (LFS) or five per cent (CANPI) lower in each period compared to private sector work history. (However, only the LFS-based difference in re-employment rates is significant.) The difference essentially remains the same even after controlling for demographic (educational attainment, gender) and other variables (job tenure, transfer status): in the LFS model it is highly significant (at around 25 per cent) and in the CANPI model it is still not significant.

It is worth considering whether there is any difference in the re-employment probabilities of employees made redundant in the public and the private sector by educational attainment. In the bottom section of *Table 2.4.1* the interaction variable of public sector and educational attainment is also shown in addition to the control variables of the previous model. The results reveal that former public-sector employees with low educational attainment (primary education or vocational training school) are 20–40 per cent less likely to be re-employed according to LFS data and 10–20 per cent less likely according to CANPI than similar workers made redundant in the private sector. There is no such difference between graduates and in the CANPI specification between people with general secondary education. Overall the moder-

ately lower re-employment probabilities (25 per cent lower according to LFS and no significant difference according to CANPI)¹³ are entirely caused by the worse prospects of lower skilled employees, and this conclusion seems robust regardless the available datasets (LFS and CANPI).

Table 2.4.1: Re-employment intensity of the non-employed leaving the public sector (compared to the private sector) based on LFS and CANPI data

| | LFS | | CANPI (re-employment within 12 months) | |
|---|------------------|------------------|---|------------------|
| | "Redundant" | "Total" | "Redundant" | "Total" |
| Baseline models (raw difference between the two sectors) | | | | |
| Public vs. private sector | 0.762*** (0.056) | 0.510*** (0.023) | 0.945 (0.032) | 0.635*** (0.012) |
| Models with control variables | | | | |
| Public vs. private sector | 0.766*** (0.061) | 0.581*** (0.029) | 0.962 (0.035) | 0.794*** (0.019) |
| Models with interactions and control variables, benchmark = public sector × primary education) | | | | |
| Public sector | 0.606*** (0.091) | 0.634*** (0.073) | 0.790*** (0.059) | 0.811*** (0.043) |
| Public sector × vocational training school | 1.260 (0.266) | 1.003 (0.154) | 1.109 (0.118) | 0.838** (0.063) |
| Public sector × general secondary education | 1.195 (0.276) | 0.844 (0.123) | 1.381*** (0.133) | 1.023 (0.067) |
| Public sector × higher education | 2.141*** (0.521) | 0.887 (0.132) | 1.552*** (0.194) | 1.018 (0.074) |

Note: Calculations are presented for the age group 25–54 years (former employees only, excluding public works participants). The pension variable in the CANPI data was available for 2000–2004 only, therefore models including the transfer status were estimated for this period. In the CANPI models education is approximated as the median educational attainment for a given occupation (SCO code).

Discrete-time hazard models, where the table displays relative risks [$\exp(\beta)$], and standard errors are reported in parentheses. Hence there is no effect if the parameter estimate equals one.

Models with control variables: education, gender, age and other factors that affect re-employment are included. The full list of control variables and their estimated parameters are reported in *Elek and Szabó* (2013).

*** $p < 0.01$. ** $p < 0.05$. * $p < 0.1$.

Source: Own calculations based on *CSO LFS* 1998–2010 and *CANPI* 2000–2006 data.

Finally, groups of columns 2 and 4 in *Table 2.4.1* show the difference between the re-employment rates of people who leave their job for whatever reason by their sector of origin (public/private). Results based on both LFS and CANPI suggest that the raw intensity of re-employment is about 35–50 per cent lower for people leaving the public sector, which drops to 20–40 per cent in models with control variables. This means that although there is no significant difference between the re-employment probabilities of those who become redundant, inactivity is more likely to be a permanent exit from the labour market in the case of public sector workers compared to private sector employees. The main reason is that people who retire from the public sector or leave it due to “other reasons” (according to the LFS) are a lot less likely to return to work than those who leave the private sector for the same

¹³ The difference between the LFS and CANPI results is due to differences in the databases and the definition of the public sector.

reasons. In contrast to those who are made redundant, in these models there is no significant difference in the relative re-employment rate of public sector workers by educational attainment.

Job mobility from the public sector

As has been shown above, the public sector was not only more stable in terms of outflow into unemployment but also in terms of job mobility compared to the private sector between 1998 and 2010: in both cases the appropriate transition probabilities were around half of those observed in the private sector (*Figures 2.4.2 and 2.4.3*). However, raw data in *Figure 2.4.3* conceal which public sector groups – in terms of education, age or branch – are more likely to move to the private sector. Using a logit regression model, it emerges that people who are disadvantaged on the labour market (low skilled, living in rural areas) moved to the private sector with a greater probability in the last 12 years. There are also substantial differences in the raw probabilities of exit to other jobs from the three main branches of the public sector. However, these get much smaller after the inclusion of control variables, when only health care appears to still have a lower exit rate by about 25–30 per cent compared to the other two branches, public administration and education. (For details see *Elek and Szabó's* (2013 paper).]

Overqualification in the new job

It is a widespread belief that people who leave the public sector are likely to accept jobs for which they are overqualified (for example a teacher becomes an administrator). Transition from the public to the private sector provides an opportunity to examine this: if it can be shown that people who move from the public sector are more likely to be overqualified for their new job, then this might indicate the lower quality of the public sector workforce – compared to the private sector.

To address this question on the LFS database we assign to each occupation group (four-digit SCO code) the median educational attainment (MEA) of workers within that occupation group. Overqualification occurs when an employee has a higher educational attainment than the MEA corresponding to their occupation. Therefore being overqualified is not only an individual characteristic but also a characteristic of the occupation group. For example – at the level of detail of the current SCO classification – overqualification is much less common among people with general secondary education in the public sector than in the private sector. Overall, 14 per cent of public sector workers and 25 per cent of private sector workers are “overqualified”.

Therefore, it is not surprising that people who leave the public sector for another occupation in the private sector have a higher probability – around

37–39 per cent – of being overqualified in their new job than the 14 per cent average in the public sector. This raw ratio is also significantly higher than the ratio observed among movers to a different occupation and branch within the private sector (30 per cent). However, after controlling for other factors that are important for overqualification (especially education) the difference basically disappears. The logit regression models of *Table 2.4.2* show this.

Table 2.4.2: Probability of overqualification among people moving to a new job in the private sector by the sector of origin (public or private) (logit models)

| | Odds ratio | |
|---|------------|---------|
| Raw odds ratio | | |
| Public vs. private sector | 1.664*** | (0.147) |
| Model with control variables | | |
| Public vs. private sector | 1.040 | (0.108) |
| Educational attainment (benchmark = vocational training school) | | |
| General secondary education | 7.313*** | (0.349) |
| Higher education | 13.627*** | (0.987) |
| Sample size | 14,063 | |
| LR χ^2 | 2237.1 | |
| Pseudo R^2 | 0.1726 | |

Dependent variable: Is the individual overqualified? Unweighted logit estimation. Sample: people moving to another occupation and branch (in the private sector), without public workers.

Note: The table shows the odds ratios, standard errors in parentheses. Raw odds ratio: odds ratio of being overqualified for people moving from the public sector *versus* people changing jobs within the private sector.

In the model with control variables: education, gender, age, age squared, and the dummy of at least two years' tenure in previous job are included. For the estimated parameters of control variables see *Elek and Szabó's* (2013) study. Control variables do not include primary education because people with primary education cannot be overqualified by definition.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Own calculations based on *LFS* 1998–2010 data.

The raw odds ratio of being overqualified for people leaving the public sector compared to people moving within the private sector is 1.66 (highly significant). After controlling for education and other parameters this drops to 1.05 and is no longer significant. So if people with similar educational attainment are compared then the widespread belief that people who come from the public sector are more likely to end up in “worse” jobs than those moving within the private sector can be refuted. This view might have developed because graduates are overrepresented in the public sector and they – naturally – are more likely to be overqualified in a new job compared to people with lower educational attainment.

Conclusions

This chapter has concluded that the public sector was considerably more stable both in terms of outflow into unemployment and into other jobs than the private sector between 1998 and 2010. The question of whether greater stability was related to adverse selection – “poorer” quality of public sector workers – was examined by looking at the re-employment rates of people who became unemployed and at the flow of workers from the public to the private sector.

The results have shown that the re-employment probability of workers made redundant in the public sector is moderately (by 5–25 per cent) lower than the same rate in the private sector; however the difference disappears in groups with higher educational attainment. Similarly the overqualification rate of movers to another job is no greater than in the private sector after controlling for educational attainment and other factors. Thus, these estimates do not support the widespread belief that people who leave the public sector face greater difficulties in finding a job and are more likely to accept jobs below their qualification level. The findings are especially interesting given the fact that our estimation strategy is more likely to overestimate rather than underestimate the quality differences due to a possible selection bias – people are much less likely to be made redundant in the public sector. However, related to its greater stability, people who leave the public sector for whatever reason are significantly less likely to be re-employed (the intensity of re-employment is 20–40 per cent lower even after controlling for other factors), mainly because pensioners who have retired from the public sector are significantly less likely to return to work.

The number of public sector workers increased between 2010 and 2013, although a large share of this increase was due to the expansion of public works programmes. It will be interesting to examine in the future how the re-employment prospects of people made redundant in the public sector have changed since 2010, when the Hungarian economy started to expand following the period of stagnation and recession after 2007. To answer this question the panel database of the Labour Force Survey as well as the database on individual social security contributions will have to be extended until 2013.

References

- BOERI, T. AND FLINN, C. (1997): Returns to mobility in the transition to a market economy. The William Davidson Institute at the University of Michigan Business School. Working Paper, No. 1018.
- CSERES-GERGELY, ZS. (2008): Incentive effects in the pension system of Hungary. In: *Fazekas, K., Cseres-Gergely, Zs. and Scharle, Á.* (eds.): *The Hungarian Labour Market – Review and Analysis 2008*. Institute of Economics, Institute of Economics, HAS Hungarian Employment Foundation. Budapest, 2008, Budapest, pp. 103–115.
- CSERES-GERGELY, ZS. (2013): Kiszorítják-e az idősebb munkavállalók a fiatalokat a közsférában? (Do older employees crowd out younger? Evidence from Hungary in a period of rising retirement age). *Közgazdasági Szemle*, Vol. 60, No. 7–8, pp. 837–864.
- ELEK, P., KÖLLŐ, J., REIZER, B. AND SZABÓ, P. A. (2012): Detecting wage under-reporting using a double-hurdle model. In: *Lehmann, H. and Tatsiramos, K.* (eds.): *Informal Employment in Emerging and Transition Economies*. Research in Labor Economics, Vol. 34. Emerald Group Publishing Limited, p. 135–166.
- Also available as: Budapest Working Papers on the Labour Market, BWP 2012/1.
- ELEK, P., OSZTOTICS, A., SCHARLE, Á., SZABÓ, B. AND SZABÓ, P. A. (2009a): *Az OEP, ONYF és a MÁK kezelésében levő adatbázisok*. (Databases managed by National Health Insurance Fund, Central Administration of National Pension Insurance and Hungarian State Treasury.) MTA KTI Adatbank (Databank of Institute of Economics, HAS).
- ELEK, P., SCHARLE, Á., SZABÓ, B. AND SZABÓ, P. A. (2009b): A bérekhez kapcsolódó adóelvitkolás Magyarországon. (Wage-related tax evasion in Hungary.) *Közpénzügyi Füzetek*, No. 23.
- ELEK, P. AND SZABÓ, P. A. (2013): An analysis of the labour outflow from the public sector in Hungary (Labour outflow from the public sector in Hungary.) *Közgazdasági Szemle*, Vol. 60, No. 5, pp. 601–628.
- SCHARLE, Á. (2008): Korai nyugdíjba vonulás. (Early Retirement.) In: *Nagy, Gy.* (ed.): *Jóléti ellátások, szakképzés és munkakínálat*. (Social transfers, vocational training and labour supply.) KTI Könyvek (KTI Books) 10. MTA KTI, Budapest, pp. 81–103.